P 324

G. M. 1981

320 § 16

SL. 22, 30-34-35

I Received Syllabus for the training of Probationary Asst. Commissioner in Elementary Engineering

G. R. S. IX-5]

Previous references.

File No. 327-16.

1916-17

(Genl: Branch)

Serial Nos. 22,30.34.35

Later references.

G.O. 54-35-14L

GENERAL AND REVENUE SECRETARIAT.

Serial Nos. 22.30.34.35

Part B for January 1918.

SUBJECT.

Revised Syllabus for the training of Prohibitionary Asst: Coms: in Elementary Engineering.

4C:35 To. The Chief Engineer & Rev: Commr:
" Dy: Comrs: of Dists:
" Comptr. J. G. of Education
" Supdt: Rev: Survey.
" J. G. of Police.
" Secy: Mysore Econo: Conference.
C/6 G. 9055-69 of 4-1-1918
Applications of the —

W D 88—GPB—50,000—24-7-18

Srinivasulu
9.2.18

G. R. S. 11] 1916-17.

GENERAL AND REVENUE SECRETARIAT.

(fm.)

NOTES.

fm. File No. 327-16

FILE HEADING.

Training of Pro: Asst: Commissioners

From

The Chief Engineer of Mysore

No. C 359 Dated 28-4-17 Received

Diary No. 9575 | Enclos. 1 | Spare Copies. | Serial No. 22

BRIEF ABSTRACT OF LETTER.

With reference to G.O. No. G-5338-52/fm 317-15-18 & 28.10.16 forwards a revised syllabus for final approval to be prescribed for training the Pro: Asst Commrs in Elementary Engineering.

NOTES AND ORDERS.

Flag A

While approving of the last syllabus it was ordered that it may be revised again after a year. In response to this order the Chief Engineer has submitted a revised syllabus.

2. The Engineering Course ordered to be undergone by the second batch of Pro: Asst Commrs (from 15-5-17) has been postponed for the present vide

NOTES—First Sheet.

9575

WD 1233—GPB—60,000—1-12-16—S.

2

From File No. 327 of 1916.

2. The Comml Section for kindly putting up the file required.

G.O.No. G.14635-44 / Fin. 327-16-23 & 3.5.17.

3. Draft G.O approving of the revised Syllabus submtd for approval

Do 5/17

Gen Secy / and member / Darwar

12/8/5/17

Secy & Mem

12/22/5/17

W. 8/6 The file referred to is put up herewith

RWD 16.6.17

will no orders need be passed on the whole Course of training is revised. The file in the subject may be put up

12/5 Secy

438.(2)

8) The file required vide G. No 327 of 1916 is put up Ref-para 7.

12/18/6/17

9) Gen Secy / Secnd member

Secy 18/6

67 / 18.6.17

10) Syllabus. Exam — the subsidiary points can be decided after the examination of the Scheme of training is settled. Accts may be decided in Comml Sect 19.6

12/18/6/17

NOTE—Contn. sheet.

9575
2972
Genl 755

WD 1233—GPB—60,000—1-12-16—S.

(3)

G. R. S. III-2]

General and Revenue Secretariat.

fin File No. 327 of 1916.

Serial No

11. Revised Govt order re Scheme of training of Pro: Asst. Cmnrs has issued. Vide Gat. order No. G. 547-96 / fin 327-16-29 of 17th July 1917.

12 As the period of training of Pro: Asst. Cmnrs in Elementary Engineering has been reduced in the above fo. from six to 3 months, perhaps a revised syllabus has to be called for from the chief Engineer.

13. Subtd with a draft fo approval & thereafter

Revd 9/8/17

(Seema Mukherjee) 13)

14. Yes

Dewan 10/8/17

361/13-8-17

15. Issue 14/8/17

30 To The chief Engineer

Pro. 2158 of 17.8.17

Sir In ref to SL 22, & Vide ref to SL 29 I requests that as the period of training in Engineering has been reduced, a fresh Syllabus to suit the shortened course may be drawn up & forwarded.

16. Subtd with a draft GO approving of the revised syllabus

Revd 29/11/17

17 (Seema Mukherjee)

30/11/17

82 x 34.

NOTE—Contn. sheet.

18 Dewan

17/12

19 Draft approved by Member 17/12/17

Sec

WD 1233—GPB—60,000—1-12-16—S.

G. R. S. III-2]

General and Revenue Secretariat.

Cm File No. 327 of 1916.

Serial No. 35

To.

the chief Engineer of mysore,
" Rev Commr
" Dy: Commrs. of Districts
" Comptroller to Govt.,
" Dy. of Education
" Superintendent, Rev: Survey.
" Dy. of Police
" Secy: Mysore Ec: Conference
G. 9055-69 of 4.1.1918

Approves of the revised Syllabus
refd. to. in Sl 34

NOTE—Contn. sheet.

Telegraphic Address—
STATEWORKS

GEN & REVENUE SECRETARIAT
GENERAL
1- MAY. 1917

No. C 399 /Gene.

MYSORE PUBLIC WORKS DEPARTMENT,
CENTRAL OFFICE,

Camp, ~~Bangalore~~, Mysore, 26th April 1917

9575

From

RAJASABHABHUSHANA
KARPUR SHRINIVASARAO, ESQ., B.SC., L.C.E., M.R.A.S.
Chief Engineer of Mysore,
BANGALORE.

327-16 & 22

To

The Secretary to Government,
General Department, B A N G A L O R E.

Sir,

With reference to Government Order No. G.5338-52 G.M. 317-15-18 dated 28th October 1916, approving the syllabus prescribed for training the Probationary Assistant Commissioners in Elementary Engineering, I have the honour to forward herewith a revised syllabus as called for therein. The revised syllabus does not materially differ from the original except that a few minor additions have been made which are considered necessary.

I have the honour to be,

S i r,

Your most obedient servant,

R V Sundaram
for Chief Engineer of Mysore.

GBPM—300—3-11-15

191 .

MYSORE P. W. DEPARTMENT.

No.

From

THE CHIEF ENGINEER OF MYSORE,

Bangalore.

To

Dated Bangalore, *191*

Despatched

Enclosure No.

SUBJECT

Superseded

6

DETAILED SULLABUS FOR THE COURSE OF TRAINING IN ENGINEERING

TO BE GIVEN TO THE PROBATIONARY ASSISTANT COMMISSIONERS

IN THE CHAMARAJENDRA TECHNICAL INSTITUTE, MYSORE.

(as revised).

(ENGINEERING SECTION).

S U B J E C T S.

1. Hydraulics and Irrigation Works.

2. Building Materials and Construction.

3. Surveying and Levelling.

4. Building Drawing and Estimating.

5. M e a s u r a t i o n.

M.A. Srinivasachar

8/4/17

Headmaster,

Engineering Section,

Chamarajendra Technical Institute,

M y s o r e.

HYDRAULICS AND IRRIGATION WORKS.

1. Pressure. -- Weight of water. Pressure on rectangular areas, such as walls and sluice gates. Equal transmission of pressure, flotation.

2. Velocity.-- Meaning of velocity. Discharge of a stream. the product of mean velocity and cross section.

3. Discharge of Orifices.-- Meaning of head. Relation between head and mean velocity. Measurement of head in simple cases. Discharge calculated from the expression $Q = CA\sqrt{2gh}$. Application to sluices. Mean velocity in a rectangular notch, two-thirds of the maximum velocity. Discharge of tank weirs and anicuts. Calculating the discharge of channels by equation $V = C\sqrt{rs}$ (Kutters formula).

4. Tank Irrigation. -- Quantity of water required for irrigation. Capacity of tank. Catchment basin. Estimation of flood discharge from basin. Full tank and maximum water levels. Requisite length of ~~wi~~ weir. Section of weir. Discharge of irrigation sluice. Construction of bund, weir and irrigation sluice of a small tank. Protection of slopes. Repairs of breaches. Anicuts and Anicut ~~irrig~~ irrigation. Alignment of channels and dimensions of canals.

5. Well Irrigation. -- Mode of sinking wells. Lifting appliances.

6. Setting up profiles for tanks and channels.

Hydraulics and Irrigation Works

by B. O. Reynolds.

Text Book	Chapter.	Paragraphs.
(1) Hydraulics by H.D.Love.	I.	Whole
do.	II.	12 to 17
do.	III.	23,27,29, and 30,31,33, 34,35,36.
do.	IV.	39,40,42,43,44,45,46,& 47.
do.	VII.	82 to 87.
(2) Irrigation works by by B.O.Reynolds.	I ,II & III.	Whole.
do.	IV.	51 to 68 & 73.
do.	IX & X.	Whole.
do.	XII.	para 186 to 196.

(3) Village Tank Manual - (Government Publication).

BUILDING MATERIALS AND CONSTRUCTION.

1. Bricks and Tiles. -- Dimensions, characteristics of good bricks and tiles, preparation and varieties of bricks and uses of them.

2. Lime, etc. -- Varieties of lime. Slaking lime. Preparation of mortor, plaster ans white-wash, and of concrete of lime, surki and cement.

3. Timber. -- Characteristics of sound timber and preservation of timber. Timber used in Mysore Province and uses.

4. Paints and Warnishes. -- Preparation. Application to new and old works.

5. Foundation. -- Setting out lines at right angles. Excavating and putting in foundations for ordinary walls.

6. Masonry. -- Brick laying in English and Flemish bond: bond at angles of walls, in footings, between main and cross walls at door and window openings and in circular pillars. String courses, cornices, wall plates, wood bricks and plugs. Openings for timber beams. Brick arches up to 6 feet span, segmental, flat and relieving. Centres for such arches. Lime plastering.

7. Carpentry. -- Couple frame: king post roof frame, and door and window frames and their joints.

8. Roofs and Floors. -- Terrace roofs anf floors on joists or I on beams and joists. Gable roofs, Design of simple roofs, rafters, purlins and reepers, common and mangalore tiled roofing. Brick and concrete flooring. Design of Beams//Joists/ scantlings of Beam joists, rafters.

9. Alignment, formation, construction and maintanance of roads. Construction of simple culverts.

Text book for Materials:- Roorkee Treatise.

1. Chapter II.
2. do. III.
3. do. V, paras 202, to 220 and notes to be dictated.
4. Notes to be dictated from B.O.Reynolds Building Construction Chapters III, V, and VI.

SURVEYING AND LEVELLING.

1. Surveying.-- Running a chain line: modes of passing obsticles, measuring offsets, use of cross staff. Survey of areas with the chain only. Well- cinditioned triangles, keeping the field book, testing the chain. Survey of areas with the plane-table and chain. Survey of areas with the prismatic compass and chain: keeping the field book.

2. Levelling. -- The French water level. Use of Dumpy, Y, and Reversible levels. Adjustments. Running lines of levels, keeping the field book, bench marks, check levels, contours, longitudinal and cross sections.

3. Drawing and mensuration. -- Use of ordinary drawing instruments. Construction of scales. Plotting surveys made with the chain, or chain and compass. Calculation of areas. Drawing of chain and compass, plane-table survey, and the surveying and levellir of a small tank and road and plotting the same. Taking out quantities of earthwork.

4. Text Book. -- Roorkee Civil Engineering College Manual of Surveying. Chapters I (pages 1 to 7, 20 to 23), Chapters II, III, VII, X (problem 1 to 12) and XØØ XII.

Building Materials and Construction Contd.

Text Book for Construction:- Burrells Construction and Drawing.

5. Chapter II.
6. do. IV.
7. do. V.
8. do. VII, IX, X, XI, XIII.
9. Notes from B. O. Reynolds Building Construction paras 218, 259, 260, 262, 263, to 269, 345, 354, 355, 369, 379, 389, 405, 407, 408, 424, 425 to 446.

BUILDING DRAWING AND ESTIMATING.

Building:- Drawing from notes, rough sketches, ~~specials~~ specifications or measurements the following:- Footings and offsets of foundations: details of brick bond in walls and small arches: ordinary joints used in carpentry: door and window frames: timber and iron ~~f~~ roof frames with covering of common and Mangalore tiles: terrace roofs and floors on jiosts or beams and joists. Drawing simple buildings, irrigation sluices and culverts. Estimation of quantities for a simple building from drawings or actual measurement and of small tanks, waste weirs, sluices and culverts and channels.

Earth Work. -- Drawing of earth work sections and finding their areas. Estimation of volumes of embankments or cuttings.

Practical.

~~Text Book:- by James Schoury.~~

M E N S U R A T I O N.

1. Units of length, and the relations between them. Leduction of the corresponding units of area and volume, with their relations.

2. Determination of sides and perimeters of rightangled triangles, and of figures similar to known figures. Determination of perimeters of regular polygons, circles and sectors of circles.

3. Methods for determining areas of squares, rectangles, parallelograms, triangles, quadrilaterals, regular an d irregualr polygons, figures similar to known figures, circles, sectors and segments of circles. Determination of areas and volumes in general by Simpson's rule. Determination of surfaces and volumes of right circular cylinders and cones, and of spheres and zones of spheres.

4.. Methods of determining volumes of cubes and arectangular parallelopipeds, and of prisms, pyramids, spheres, cylinders and cones. Practical rules for the measurement of timber.

Text book: Stevens Mensuration. --

Chapters LL to XXII

I N S P E C T I O N.

1. Inspection and taking sketches of important features from the construction of public buildings etc., in Mysore.

2. Inspection of a few irrigation works in progress in the Province, for a period of about two weeks.

1 14/8

G. R. S. VI—G/32]

SUBJECT.....

.....

.....

Diary No. of letter replied to .. ..

GENERAL AND REVENUE SECRETARIAT

( )

, *the* 191 .

Date of issue 17. 8 17

Signed by M. Egerton

Section Fin

File No. 32

Serial No. 30

No. G 2158

To

The Chief Engineer of Mysore

Sir,

With reference to your letter No. C. 399 of 28th April 1917 forwarding a revised Syllabus to be prescribed for training the Probationary Asst. Comrs. in Elementary Engineering, I am directed to invite your reference to G.O. No. G.547-96 Fin. 327-16-29 of 17-7-1917 issuing revised instructions regarding the training of Pro: Asst Comrs and

over.

Read

A

32/16

and to request that, as the period of training in Engineering has been reduced in the said G.C. from six to three months, a revised Syllabus to suit the Shortened Course may be kindly drawn up & forwarded.

I have &c

Secy to Govt
Genl Dept

List of enclosures.

Copied by

Examined by

2972

Telegraphic Address : *Statcworks*

7 OCT 1917

No. 10700/ five 5 pages

MYSORE P. W. DEPARTMENT. 327-16

CENTRAL OFFICE. 34

Bangalore, 2/10/ September *191* 7.

From

Rajasabhabhushana
KARPUR SHRINIVASRAO, ESQ., B.SC., L.C.E.,
Chief Engineer of Mysore,
Bangalore.

To

C.S.Balasundaram Iyer, Esq., B.A.,
Secretary to Government,
General Department.

Sir,

Adverting to your letter No.G.2158/G.M.327-16-30 dated the 17th August 1917, I have the honour to forward herewith, for the approval of Government, a revised syllabus for the training of Probationary Assistant Commissioners in Engineering, to suit the course the duration of which has been shortened.

I have the honour to be,
Sir,
Your most obedient servant,

RV Sundaramma
Chief Engineer of Mysore.

V.N.S.

WD 0278—5 PB—2,500- 2-2 17

191

MYSORE P. W. DEPARTMENT.

No.

From

THE CHIEF ENGINEER OF MYSORE,

Bangalore.

To

Dated Bangalore

Despatched

Enclosure No.

SUBJECT

REGD. No. ...
... 1917
... P. W. ...

15

DETAILED SYLLABUS FOR THE COURSE OF TRAINING IN ENGINEERING

TO BE GIVEN TO THE PROBATIONARY ASSISTANT COMMISSIONERS (in 3 months)

IN THE CHAMARAJENDRA TECHNICAL INSTITUTE . MYSORE.

(as revised)

Engineering Section.

1. Hydraulics and Irrigation Works.

2. Building Materials and Constuction.

3. Surveying and Levelling..

4. Building Drawing and Estimating.

5. Inspection.

M. A. Srinivasachar

Headmaster,

Engineering Section,

Chamarajendra Technical Institute,

Mysore.

HYDRAULICS AND IRRIGATION WORKS.

1. Pressure. -- Weight of water. Pressure on rectangular areas. such as walls and sluice gates. Equal transmission of pressure, flotation

2. Velocity.-- Meaning of velocity. Discharge of a stream, the product of mean velocity and cross section.

3. Discharge of Orfices. -- Meaning of head Relation between head mean velocity. Measurement of head in simple cases. Discharge calculated from the expression $Q = CA\sqrt{2gh}$. Application to sluices. Mean velocity in a rectangular notch, 2/3 of maximum velocity. Discharge of tank weirs and anicuts. Calculating the discharge of channels by equation $V = c\sqrt{rs}$. (Kutters formula).

4. Tank Irrigation.-- Quantity of water required for irrigation. Capicity of tank. Catchment basin Estimation of flood diacharge from basin Full tank and maximum water levels. Requisite length of weir. Section of weir. Discharge of irrigation sluice. Construction of bund, weir and irrigation sluice, of a small tank. Protection of slopes. Repairs of breaches

5. Well Irrigation. -- Mode of sinking wells. Lifting appliances

6. Setting up profiles for tanks.

Hydraulics and Irrigation Works.

(by B. O. Reynolds.)

Text Books.	Chapter.	Paragraphs.
(1).Hydraulics by H. D. Love	I.	Whole.
do.	II.	12 to 17.
do.	III.	23, 27, 29, 30, 31, 33, 34, 35, 36.
do.	IV.	39, 40, 42, 43, 44, 45, 46 and 47.
(2).Irrigation Works by B. O. Reynolds.	I, II,	Whole.
do.	IX, X,	do
do.	XII.	186 to 196.

(3). Village tank Mannual. (Government Publication.)

BUILDING MATERIALS AND CONSTRUCTION.

1. Bricks and Tiles. -- Dimensions, characterstics of good bricks and tiles, preparation and varities of bricks and uses of them.

2. Lime. -- Varities of lime. Slaking lime. Preparation of mortar, plaster and whitewash and of concrete of lime surki and cement.

3. Timber . Characterstics of sound timber and preservation of timber. Timbers used in Mysore ~~Province~~ and their uses. Practcal rules for measurement of timbers

4. Paints and Varnishes. -- Preperation. Application to new and old wokks.

5. Foundation. -- Setting out lines at right angles. Excavating and putting in foundations for ordinary walls .

6. Masonary. -- Brick laying in English and Flemish bonds. ~~xxx~~ ; bond at angles of wells, in footings, between main and cross walls at door and window openings and in circular pillars. String courses, cornices wall plates wood bricks and plugs . Openings for timber beams. Brick arches up to 6 feet span. segmental, flat, and reliving , Centres for such arches. Lime Plastering.

7. Carpentry. -- Couple frame: king post roof. frame, door and window frames and their joints.

8. Roofs and Floors. -- Terrace roofs and floors on joists or on ~~mmm~~ beams and joists. Gable roofs, Design of simple roofs, rafters, purlins and reepers common and mangalore tiled roofing. Brick and cocrete flooring. Design of scantlings of beams, joists and rafters.

9. Alignment , formation constuction and maintanance of roads.

Test books for Materials:- Roorkee Treatise.

1. Chapter II.
2. do III.
3. do V. paras 202 to 220 and notes to be dictated.
4. Notes to be dictated from B. O. Reynolds Building Constuction Chapters III, V, VI.

Building Materials and Construction (Continued)

Test books for Construction:--Burrells Construction and Drawing.

5. Chapter. II.
6. do. IV.
7. do. V.
8. do. VI, X. XI. XIII.
9. Notes from B. O. Reynolds. Building Construction paras 218, 259, 260, 261, 262, 263, to 269. 345, 354 355 369, 379, 389, 405, 407, 408 425 to 431, 433, to 446.

BUILDING DRAWING AND ESTIMATENG.

Building. :-- Drawing from notes, rough sketches, specifications or measurements the following :- Footings and offsets of foundations: details of bricks bond in walls and small arches: ordinary joints used in carpentry: door and window frames: timber and iron roof frames with covering of common and Mangalore tiles. terace roofsand floors on joists or beams and joists. Drawing simple buildings and irrigation sluices. Estimation of quamtities for a simple building from drawing or actual measurements and of a small tanks waste weirs and sluices.

Earth Work. :-- Drawing of earth work sections and finding their areas. Estmating of volumes of embankments or cuttings.

SURVEYING AND LEVELLING.

1. Surveying :-- Running of chain line: modes of passing obstacles, measuring offsets, use of cross staff. Survey of areas with the chain only: Well-conditioned triangles, keeping the feildsbook, testing the chain Survey of areas with the prismatic compass and chain: keeping the feild-book.

2. Levelling . :- Use of Dumpy, Y., and Reversible levels. Adjustments Running line of levels, keeping the feild-book, bench marks check levels, longitudinal and cross section.

3. Drawing and mensuration. :-- Construction of scales. Plotting surveys made with the chain or chain and compass. Calculation of areas. Drawing of chain and compass.. Surveying and levelling of a small tank and plotting the same. Taking out quantities of earth-work.

4. Text Book. :-- Roorkee Civil Engineering College Manual of Surveying. Chapters I (construction scales 20 to 23.) Chapters II, III, X, promblems 1 to 12.) and XII.

I N S P E C T I O N.

1. Inspection and taking sketches of important features frpm the construction of public buildings etc., in Mysore.

2. Inspection of a few irrigation works near Mysore.

M. A. Srinivasachar

Head Master.

Engineering School,

Mysore.

Mysore.

28th August 1917.

Approving of the Syllabus for the training of Pro. Asst. Overs in Elementary

G.R.S. 28 5 Copies

T S
Please type a copy of Flag C (Enclosure 5 & Word I) for being sent to Govt

File No. [illegible]
Serial No. 827-36
35

Diary No. of letter replied to

Proceedings of the Government of His Highness the Maharaja of Mysore

GENERAL AND REVENUE SECRETARIAT.
( )

, the 9 191 .

READ—

Government order No. G 2682-96 Fin 317-15-15 dt 24-8-1916 Sanctioning a Scheme for the training of Pro: Asst. Overs. in Elementary Engineering and prescribing a six months' course.

2. Govt. order No. G.S330-52 Fin. 317-15-18 dt 28th October 1916 approving of a Syllabus forwarded by the Chief Engineer for the Course referred to in the above.

3. Govt. order No. G.S247-96 Fin 327-16-28 dt 17th July 1917 issuing instructions regarding the

Over.

Date of issue 4.1.18

Signed by [illegible]

O

May this be

T

i printed?

ii treated as a standing order?

iii published in the Gazette English part?

iv translated?

v placed at the disposal of the Press? P

vi published in the Gazette Kannada part?

ORDER THEREON.—No.

SUBJECT.

Govt Order

GRB—50,000—1-12-12

the training of Pro. Asst. Conrs. and reducing the period of training in Elementary Engineering

4. Correspondence ending with letter No. 10700 dt 2nd October 1917 from the Chief Engineer of Mysore forwarding for approval a revised Syllabus* for the training of Pro: Asst. Conrs. in Elementary Engineering to suit the shortened Course.

*Printed as an annexure-A.

Order:—No.

The revised Syllabus received from the Chief Engineer with his letter read above is approved.

W/17.12

Secl 19.2.17

Chief Secy to Govt

To.

The Chief Engineer of Mysore
- Pro Conrs. in Mysore
- Dy: Conrs of Stores
- Comptroller to Govt
- Inspector General of Education in Mysore
- Under Secy
- Supdt of Police in Mysore
- Secretary Mysore Economic Conference

Government of His Highness the Maharaja of Mysore.

GENERAL AND REVENUE DEPARTMENTS.

G. O. No. G. 9055-69—G. M. 327-16-35, dated 4th January 1918.

Elementary Engineering.

Approves the revised Syllabus for the training of Probationary Assistant Commissioners in –

W D A1468—GPB—1-2-18—325

No. G. 9055-69 G. M. 327-16-35, DATED 4TH JANUARY 1918.

PROCEEDINGS OF THE GOVERNMENT OF HIS HIGHNESS THE MAHARAJA OF MYSORE.

GENERAL AND REVENUE DEPARTMENTS.

READ

1. Government Order No. G. 2682-96 G. M. 317-15-15, dated 24th August 1915, sanctioning a scheme for the training of Probationary Assistant Commissioners in Elementary Engineering subjects during six months' course.

2. Government Order No. G. 5338-52 G. M. 317-15-18, dated 28th October 1916, approving of the syllabus prepared by the Chief Engineer for the course mentioned in the above

3. Government Order No. G. 547-96 G. M. 327-16-29, dated 17th June 1917, sanctioning the reduction of the training of Probationary Assistant Commissioners in Elementary Engineering from six to three months

4. Correspondence ending with letter No. 10700, dated 2nd October 1917, from the Chief Engineer forwarding for approval a revised syllabus for the training of Probationary Assistant Commissioners in Elementary Engineering

(Printed as an annexure.)

Order No. G. 9055-69 G M. 327-16-35, dated 4th January 1918.

The revised syllabus received from the Chief Engineer with his letter cited above is approved.

C. S. BALASUNDARAM IYER.
Chief Secretary to Government.

To—The Chief Engineer of Mysore.
The Revenue Commissioner in Mysore.
The Deputy Commissioners of Districts
The Comptroller to Government.
The Inspector-General of Education in Mysore.
The Superintendent, Revenue Survey.
The Inspector-General of Police in Mysore.
The Secretary, Mysore Economic Conference.

Ed.—C. R.

No. G. 9055-69—G. M. 327-16-35, dated 4th January 1918.

ANNEXURE.

Detailed Syllabus for the Course of Training in Engineering to be given to the Probationary Assistant Commissioners in the Chamarajendra Technical Institute, Mysore.

(As revised.)

Engineering Section.

1. Hydraulics and Irrigation Works.
2. Building Materials and Construction.
3. Surveying and Levelling.
4. Building and Drawing and Estimating.
5. Inspection.

No. G. 9055-69—G. M. 327-16-35, DATED 4TH JANUARY 1918.

HYDRAULICS AND IRRIGATION WORKS.

Pressure.—Weight of water. Pressure on rectangular areas, such as walls and sluice gates. Equal transmission of pressure, floatation.

2. *Velocity.*—Meaning of velocity. Discharge of a stream, the product of mean velocity and cross section.

3. *Discharge of Orifices.*—Meaning of head. Relation between head and mean velocity. Measurement of head in simple cases. Discharge calculated from the expression $Q = CA\sqrt{2gh}$. Application to sluices. Mean velocity in a rectangular notch, 2/3 × maximum velocity. Discharge of tank weirs and anicuts. Calculating the discharge of channels by equation $V = c\sqrt{rs}$ (Kutter's formula).

4. *Tank Irrigation.*—Quantity of water required for irrigation. Capacity of tank. Catchment basin. Estimation of flood discharge from basin. Full tank and maximum water levels. Requisite length of weir. Section of weir. Discharge of irrigation sluice. Construction of bund, weir and irrigation sluice, of a small tank. Protection of slopes. Repairs of breaches.

5. *Well Irrigation.*—Mode of sinking wells. Lifting appliances.

6. Setting up profiles for tanks.

HYDRAULICS AND IRRIGATION WORKS.

(By B. O. Reynolds.)

	Text Books.	Chapter.	Paragraphs.
1.	Hydraulics by H. D. Love ...	I	Whole.
	Do do ...	II	12 to 17.
	Do do ...	III	23, 27, 29, 30, 31, 33, 34, 35, 36.
	Do do ...	IV	39, 40, 42, 43, 44, 45, 46 and 47.
2.	Irrigation Works by B. O. Reynolds..	I, II	Whole.
	Do do ...	IX, X	Do.
	Do do ...	XII	186 to 196.
3.	Village Tank Manual. (Government Publication.)		

BUILDING MATERIALS AND CONSTRUCTION.

1. *Bricks and Tiles.*—Dimensions, characteristics of good bricks and tiles, preparation and varieties of bricks and uses of them.

2. *Lime.*—Varieties of lime. Slaking lime. Preparation of mortar, plaster and white-wash and of concrete of lime surki and cement.

3. *Timber.*—Characteristics of sound timber and preservation of timber, timbers used in the Mysore State and their uses. Practical rules for measurement of timbers.

4. *Paints and Varnishes.*—Preparation. Application to new and old works.

5. *Foundation.*—Setting out lines at right angles. Excavating and putting in foundations for ordinary walls.

6. *Masonry.*—Brick laying in English and Flemish bonds. Bond at angles of walls, in walls between main and cross walls at door and window openings and in circular pillars. String courses, cornices, wall plates, wood bricks and plugs. Openings for timber beams. Brick arches upto six feet span. Segmental, flat and relieving, centres for such arches. Lime plastering.

7. *Carpentry.*—Couple frame: king post roof, frame, door and window frames and their joints.

8. *Roofs and Floors.*—Terrace roofs and floors on joists or on beams and joists. Gable roofs. Design of simple roofs, rafters, purlins and reepers, common and Mangalore tiled roofing. Brick and concrete flooring. Design of scantlings of beams, joists and rafters.

9. Alignment, formation, construction and maintenance of roads.

Text-books for Materials:—Roorkee Treatise.

1. Chapter II.
2. Do III.
3. Do V. Paras 202 to 220 and notes to be dictated.
4. Notes to be dictated from B. O. Reynolds' Building Construction, chapters III, V, VI.

Text-books for Construction:—Burrell's Construction and Drawing.

5. Chapter II
6. Do IV
7. Do V
8. Do VI, X, XI, XIII.
9. Notes from B. O. Reynolds' Building Construction, paras 218, 259, 260 to 269, 345, 354, 355, 369, 379, 389, 405, 407, 408, 425, to 431, and 433 to 446.

BUILDING DRAWING AND ESTIMATING.

Building.—Drawing from notes, rough sketches, specifications or measurements of the following:—Footings and offsets of foundations: details of bricks bond in walls and small arches: ordinary joints used in carpentry: door and window frames: timber and iron roof frames with covering of common and Mangalore tiles. Terrace roofs and floors on joists or beams and joists. Drawing simple buildings and irrigation sluices. Estimation of quantities for a simple building from drawing or actual measurements and of a small tank's waste weirs and sluices.

Earthwork.—Drawing of earthwork sections and finding their areas. Estimating of volumes of embankments or cuttings.

SURVEYING AND LEVELLING.

Surveying.—Running of chain line: modes of passing obstacles, measuring offsets, use of cross staff, survey of areas with the chain only: Well-conditioned triangles, keeping the field-book, testing the chain survey of areas with the prismatic compass and chain; keeping the field-book.

2. *Levelling.*—Use of Dumpy, Y, and reversible levels. Adjustments. Running lines of levels, keeping the field-book, bench marks, check levels, longitudinal and cross section.

3. *Drawing and Mensuration.*—Construction of scales. Plotting surveys made with the chain or chain and compass. Calculation of areas. Drawing of chain and compass. Surveying and levelling of a small tank and plotting the same. Taking out quantities of earthwork.

4. *Text-book.*—Roorkee Civil Engineering College Manual of Surveying.— Chapter I (construction scales 20 to 23.) Chapters II, III, X, (problems 1 to 12) and XII.

INSPECTION.

1. Inspection and taking sketches of important features from the construction of public buildings, etc., in Mysore.

2. Inspection of a few irrigation works near Mysore